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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------|-------------|------------------------|---------------------|------------------|
| 10/620,579 | 07/15/2003 | Phillip James Bradbury | 861975/0270 | 8858 |
| 7590 06/30/2004 | | | | |
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| | | EXAMINER | | |
| | | EDGAR, RICHARD A | | |
| | | ART UNIT | | PAPER NUMBER |
| | | 3745 | | |

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,579

Applicant(s)

BRADBURY ET AL.

Examiner

Richard Edgar

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/20/2003
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

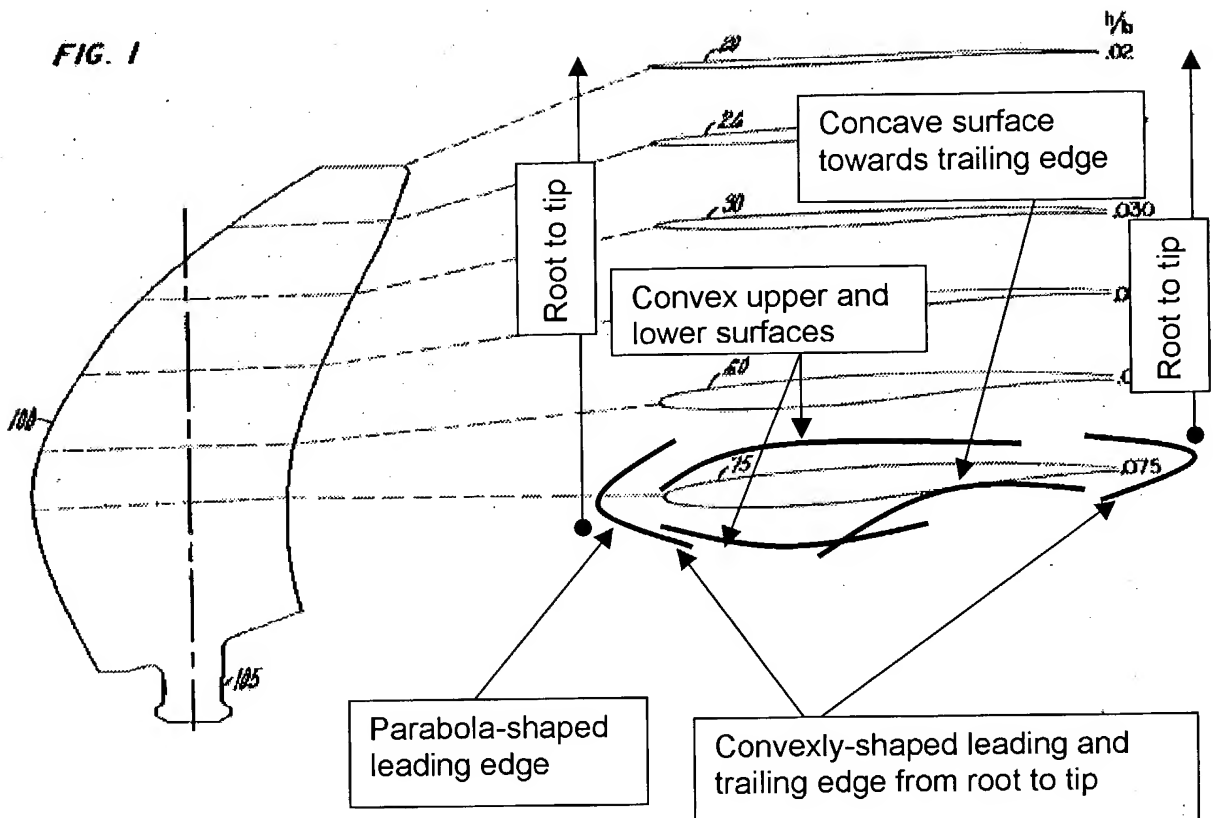
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,834,617 issued to Wainauski et al.

Wainauski et al. teach a blade having a root portion, a tip portion, a leading edge, a trailing edge, a cross-sectional shape, taken anywhere along a radius of the blade, characterized by a maximum thickness located substantially constantly as a percentage of chord, and a maximum camber located substantially constantly as percentage of chord (see col. 7, lines 27-33 and Figs. 2 and 3).

The leading and trailing edges are convexly shaped from the root portion to the tip portion.

Furthermore, the leading edge is similar to a parabola in shape, the suction side of the blade is convexly shaped, and the pressure side of the blade is convexly shaped towards the leading edge and concavely shaped towards the trailing edge (see Figs. 1 and 4).



During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification (MPEP § 2111). Also, the words of a claim must be given their "plain meaning" unless they are defined in the specification (MPEP §2111.01). Upon review of the lengthy specification, Applicants have not provided a special meaning to the term "impeller". Accordingly, those of ordinary skill in the art would define an impeller as any device capable of inducing a pressure differential to a working fluid or reacting to a working fluid pressure differential. Applicants use of the phrase "a blade for an impeller" does not exclude blades such as propellers.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 4,834,617 issued to Wainauski et al.

Wainauski et al. disclose the maximum blade thickness at approximately 36% chord and the maximum blade camber at approximately 74% chord.

Wainauski et al. do not disclose expressly a maximum thickness located between about 16% chord to about 23% chord and a maximum camber located substantially between about 40% chord to about 51% chord.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to change the chord position range having the maximum thickness and camber because Applicants have not disclosed that 16-23% and 40-51% chord ranges provide an advantage, are used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a maximum blade thickness at approximately 36% chord and a maximum camber at approximately 74% chord because the Wainauski et al. airfoil dimensions are for a high efficiency blade.

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Therefore, it would have been an obvious matter of design choice to modify the substantially constant maximum camber and thickness positions of Wainauski et al. to obtain the invention as specified in claims 2, 5 and 6.

Cited Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lorea et al. are cited for showing an axial fan blade having a maximum camber and maximum thickness of the blade located substantially constantly as a percentage of chord. Also note that the blade has a constant cross-section.

Park shows a fan blade having a maximum thickness and camber at a constant of the chord.

Conclusion

This is a continuation of applicant's earlier Application No. 10/222,562 (Patent No. 6,616,409). All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (703) 305-0050. The examiner can normally be reached on Monday-Thursday 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Richard Edgar
Examiner
Art Unit 3745

RE



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

6/26/04